IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) An optical multilayer structure comprising:

a substrate;

a light-absorbing first layer;

a gap portion having a changeable size capable of causing an optical interference phenomenon; and

a second layer;

wherein when a complex index of refraction of the substrate is N_s ($= n_s - i \cdot k_s$, where n_s denotes a refractive index, k_s denotes an extinction coefficient, and i represents an imaginary unit), a complex index of refraction of the first layer is N_1 ($= n_1 - i \cdot k_1$, where n_1 denotes a refractive index, and k_1 denotes an extinction coefficient), a refractive index of the second layer is n_2, and a refractive index of an incident medium is 1.0, the relation of the following Expression (1) is satisfied.

$$\{(n_1-(n_2^2+1)/2)^2+k_1^2-((n_2^2-1)/2)^2\}\{(n_s-(n_2^2+1)/2)^2+k_s^2-((n_2^2-1)/2)^2\}<0 \ldots(1).$$

2. (Original) An optical multilayer structure according to claim 1, wherein the first layer, the gap portion, and the second layer are stacked in accordance with this order on the substrate.

3. (Canceled)

4. (Original) An optical multilayer structure according to claim 1, wherein the second layer is made of a transparent material.

5. (Original) An optical multilayer structure according to claim 1, wherein the substrate is a light-absorbing substrate or a substrate on which a light absorbing film is formed.

6. (Original) An optical multilayer structure according to claim 1, wherein the substrate is made of a transparent material or a translucent material.

7. (Original) An optical multilayer structure according to claim 1, further comprising driving means for changing an optical size of the gap portion,

wherein the size of the gap portion is changed by the driving means, thereby changing an amount of reflection, transmission, or absorption of incident light.

8. (Original) An optical multilayer structure according to claim 7, wherein the optical size of the gap portion is changed by the driving means in a binary manner or continuously between an odd multiple of $\lambda/4$ and an even multiple $\lambda/4$ (including 0), thereby changing the amount of reflection, transmission, or absorption of incident light in a binary manner or continuously.

9. (Original) An optical multilayer structure according to claim 1, wherein at least one of the first and second layers is a composite layer made of two or more layers having optical characteristics different from each other.

10. (Original) An optical multilayer structure according to claim 4, wherein the second layer is a silicon nitride film.

11. (Original) An optical multilayer structure according to claim 10, wherein the second layer is made by a silicon nitride layer and a transparent conductive layer.

12. (Original) An optical multilayer structure according to claim 7, wherein at least one of the first and second layers partly includes a transparent conductive layer, and the driving means changes the optical size of the gap portion by an electrostatic force generated by application of a voltage to the transparent conductive film.

13. (Original) An optical multilayer structure according to claim 12, wherein the transparent conductive film is made of ITO, SnO_2, or ZnO.

14. (Original) An optical multilayer structure according to claim 1, wherein the gap portion is filled with air, transparent gas, or transparent liquid.

15. (Original) An optical multilayer structure according to claim 1, wherein the gap portion is in vacuum.

16. (Original) An optical multilayer structure according to claim 1, wherein the light-absorbing first layer is made of any one of metal, metal oxide, metal nitride, carbide, and semiconductor.

17. (Original) An optical multilayer structure according to claim 5, wherein the light-absorbing substrate or light-absorbing thin film is made of any one of metal, metal oxide, metal nitride, carbide, and semiconductor.

18. (Original) An optical multilayer structure according to claim 1, wherein an optical thickness of the second layers is $\lambda/4$ or less (λ: design wavelength of incident light).

19. (Original) An optical multilayer structure according to claim 1, wherein the first layer is made of silicon and the optical thickness of the second layer is $\lambda/2$ or less (λ: design wavelength of incident light).

20. (Original) An optical multilayer structure according to claim 1, wherein the substrate is made of carbon, graphite, carbide, or a transparent material, and the optical thickness of the second layer is $\lambda/4$ or less (λ: design wavelength of incident light).

21. (Original) An optical multilayer structure according to claim 1, wherein the substrate is made of carbon, graphite, carbide, or a transparent material, the first layer is made of silicon, and the optical thickness of the second layer is $\lambda/4$ or less (λ: design wavelength of incident light).

22. (Original) An optical multilayer structure according to claim 7, wherein the driving means changes an optical size of the gap portion by using a magnetic force.

23-25. (Canceled)

26. (Original) An image display for displaying a two-dimensional image by irradiating a plurality of optical switching devices arranged one-dimensionally or two-dimensionally with light,

the optical switching device comprising:

an optical multiplayer structure having a substrate, a light-absorbing first layer, a gap portion having a changeable size capable of causing an optical interference phenomenon, and a second layer; and

driving means for changing an optical size of the gap portion.

27-82. (Canceled)